AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-23 (Canceled).

Claim 24 (Currently Amended):   A medical system comprising:

a medical device that delivers a therapy to a patient, and monitors at least one physiological parameter of the patient based on a signal received from at least one sensor;

a processor that determines a plurality of values ~~value~~ of a metric that is indicative of sleep quality over time, each of the values of the sleep quality metric determined based on values of the at least one physiological parameter determined during delivery of the therapy by the medical device according to at least one of a plurality of therapy parameter sets ~~set~~, and associates each of the determined values of the sleep quality metric ~~value~~ with the at least one of the plurality of therapy parameter ~~set~~ sets and, for each of the plurality of therapy parameter sets, determines a representative value of the sleep quality metric based on the values of the sleep quality metric associated with the therapy parameter set, wherein the representative value for each therapy parameter set comprises one of a mean value or a median value; and

a memory that receives the sleep quality metric ~~value~~ values, the representative values, and an indication of the therapy parameter sets ~~set~~ associated with the sleep quality metric ~~value~~ values and representative values.

Claim 25 (Original):   The medical system of claim 24, wherein the medical device monitors at least one of activity level, posture, heart rate, respiration rate, respiratory volume, and core temperature.

Claim 26 (Original):   The medical system of claim 24, wherein the medical device monitors at least one of blood pressure, blood oxygen saturation, partial pressure of oxygen within blood, partial pressure of oxygen within cerebrospinal fluid, muscular activity, arterial blood flow, melatonin level within a bodily fluid, and galvanic skin response.

Claim 27 (Original): The medical system of claim 24, wherein the sleep quality metric comprises sleep efficiency, and the processor identifies when the patient is attempting to sleep, identifies when the patient is asleep, and determines a percentage of time that the patient is asleep while the patient is attempting to sleep as the value of the sleep quality metric.

Claim 28 (Original): The medical system of claim 24, wherein the sleep quality metric comprises sleep latency, and the processor identifies a first time when the patient begins attempting to sleep, identifies a second time when the patient falls asleep, and determines an amount of time between the first and second times as the value of the sleep quality metric.

Claim 29 (Original): The medical system of claim 24, wherein the processor identifies when the patient is asleep, and determines an amount of time that the patient is asleep during a period as the value of the sleep quality metric.

Claim 30 (Original): The medical system of claim 24, wherein the processor identifies when the patient is asleep, and identifies at least one of a number of arousal events and a number of apnea events during a period of sleep as the value of the sleep quality metric.

Claim 31 (Original): The medical system of claim 24, wherein the processor identifies when the patient is within a sleep state, and determines an amount of time that the patient was within the sleep state.

Claim 32 (Original): The medical device of claim 31, wherein the sleep state comprises at least one of an S3 sleep state and an S4 sleep state.

Claim 33 (Original): The medical system of claim 24, wherein the processor determines a value of each of a plurality of sleep quality metrics, and determines a value of an overall sleep quality metric based on the plurality of sleep quality metric values.

Claim 34 (Original): The medical system of claim 33, wherein the processor applies a weighting factor to at least one of the plurality of sleep quality metric values to determine the value of the overall sleep quality metric.

Claim 35 (Original): The medical system of claim 24, further comprising a programming device to present sleep quality information to a user based on the sleep quality metric values determined by the processor.

Claim 36 (Original): The medical system of claim 35, wherein the user comprises a clinician, and the programming device comprises a clinician programmer that presents at least one of a trend diagram, a histogram and a pie chart to the clinician based on the sleep quality metric values.

Claim 37 (Original): The medical system of claim 35, wherein the user comprises a patient, and the programming device comprises a patient programmer that presents a message related to sleep quality to the patient based on the sleep quality metric values.

Claims 38 and 39 (Canceled).

Claim 40 (Currently Amended): The medical system of claim 24~~38~~, further comprising a programming device that presents a list of the therapy parameter sets and the associated representative values to a user, and orders the list of therapy parameter sets according to the associated representative values.

Claim 41 (Currently Amended): The medical system of claim 24~~38~~,

wherein the processor determines a plurality of values over time for each of a plurality of metrics that are indicative of sleep quality, each of the values of each of the sleep quality metrics determined based on values of the at least one physiological parameter that were determined during delivery of the therapy according to at least one of the a plurality of therapy parameter sets, and associates each of the determined values with the at least one of the plurality of therapy parameter sets, and

wherein, for each of the plurality of therapy parameter sets, the processor determines a representative value for each of the sleep quality metrics based on the values of that sleep quality metric associated with the therapy parameter set.

Claim 42 (Original):   The medical system of claim 41, further comprising a programming device that presents a list of the therapy parameter sets and the associated representative values to a user, and orders the list of therapy parameter sets according to the representative values of a user-selected one of the sleep quality metrics.

Claim 43 (Original):   The medical system of claim 24, wherein the processor comprises a processor of the medical device.

Claim 44 (Withdrawn):   The medical system of claim 24, further comprising a programming device, wherein the processor comprises a processor of the programming device.

Claim 45 (Original):   The medical system of claim 24, wherein the medical device comprises an implantable medical device.

Claim 46 (Currently Amended): The medical system of claim 45, wherein the implantable medical device comprises at least one of an implantable neurostimulator or and an implantable drug pump.

Claim 47 (Currently Amended):   The medical system of claim 24, wherein the medical device comprises at least one of a trial neurostimulator or and a trial pump.

Claim 48 (Currently Amended):   A medical system comprising:

   means for monitoring at least one physiological parameter of a patient;

   means for determining a plurality of values ~~value~~ of a metric that is indicative of sleep quality over time, each of the values of the sleep quality metric determined based on the at least one physiological parameter;

   means for identifying which of a plurality of a ~~current~~ therapy parameter sets ~~set~~ was used by a medical device to deliver ~~delivery~~ therapy to the patient when each of the plurality of sleep quality metric values was determined; ~~and~~

   means for associating each of the determined values of the sleep quality metric ~~value~~ with the at least one of the plurality of ~~current~~ therapy parameter sets ~~set~~ based on the identification; and

   means for determining a representative value of the sleep quality metric for each of the plurality of therapy parameter sets based on the values of the sleep quality metric associated with the therapy parameter set, wherein the representative value for each therapy parameter set comprises one of a mean value or a median value.

Claim 49 (Currently Amended):   The medical system of claim 48, ~~wherein means for determining a sleep quality metric value comprises means for determining a plurality of values of the sleep quality metric over time, the system~~ further comprising means for presenting sleep quality information to a user based on the plurality of values.

Claim 50 (Currently Amended):   The medical system of claim 48,

~~wherein means for determining a sleep quality metric value comprises means for determining a plurality of values of the sleep quality metric over time, and means for associating the sleep quality metric value with the current therapy parameter set comprises means for associating each of the determined values of the sleep quality metric with a current therapy parameter set,~~

~~the system~~ further comprising:

~~means for determining a representative value of the sleep quality metric for each of a plurality of therapy parameter sets based on the values of the sleep quality metric associated with the therapy parameter set;~~

means for presenting a list of the therapy parameter sets and the associated representative values to a user; and

means for ordering the list of therapy parameter sets according to the associated representative values.

Claim 51 (Currently Amended):   A medical system comprising:

an implantable medical device that delivers a therapy to a patient, monitors at least one physiological parameter of the patient, determines a plurality of values of a metric that is indicative of sleep quality <u>over time, each of the values of the sleep quality metric determined</u> based on values of the at least one physiological parameter, ~~and~~ associates each of the sleep quality metric values with at least one of a plurality of therapy parameter sets that was used by the medical device to deliver the therapy to the patient when the values of the at least one physiological parameter were determined<u>, and, for each of the plurality of therapy parameter sets, determines a representative value of the sleep quality metric based on the values of the sleep quality metric associated with the therapy parameter set, wherein the representative value for each therapy parameter set comprises one of a mean value or a median value</u>; and

an external programming device including a display that receives sleep quality metric values and indications of therapy parameter sets with which the sleep quality metric values are associated from the implantable medical device, and presents sleep quality information to a user via the display based on the sleep quality metric values and the indications.

Claim 52 (Original):   The medical system of claim 51,

wherein the user comprises a clinician and the programming device comprises a clinician programmer, and

wherein the programming device presents a graphical representation of the sleep quality metric values via the display.

Claim 53 (Original):   The medical system of claim 52, wherein the programming device presents at least one of a trend diagram, a histogram and a pie chart via the display based on the sleep quality metric values.

Claim 54 (Original):   The medical system of claim 51,

wherein the user comprises a patient and the programming device comprises a patient programmer, and

wherein the programming device presents a message related to sleep quality to the patient based on the sleep quality metric values.

Claim 55 (Currently Amended):   The medical system of claim 51,

~~wherein the implantable medical device determines a representative value for the sleep quality metric for each of the plurality of therapy parameter sets based on the values of the sleep quality metric associated with the therapy parameter sets, and~~

wherein the programming device orders a ~~the~~ list of therapy parameter sets according to the associated representative sleep quality metric values.

Claim 56 (Currently Amended):   The medical system of claim 51, wherein the implantable medical device comprises at least one of an implantable neurostimulator or ~~and~~ an implantable drug pump.

Claims 57-99 (Canceled).